



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,742	01/17/2002	Katsuhiko Namba	2185-0612P-SP	2564
2292	7590	09/20/2004	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			THORNTON, YVETTE C	
		ART UNIT	PAPER NUMBER	
		1752		
DATE MAILED: 09/20/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/046,742	NAMBA ET AL.
	Examiner Yvette C. Thornton	Art Unit 1752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 12 July 2004.  
 2a) This action is FINAL.      2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1-6 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-6 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_

### **DETAILED ACTION**

This is written in reference to application number 10/046742 filed on January 17, 2002 and published as US 2002/0147259 A1 on October 10, 2002.

#### *Response to Amendment*

1. Claims 1-6 are currently pending. Claims 5-6 are newly added.

#### *Oath/Declaration*

2. The examiner acknowledges the declaration submitted pursuant to 37 CFR 1.132 by inventor Junji Nakanishi on July 12, 2004.

#### *Double Patenting*

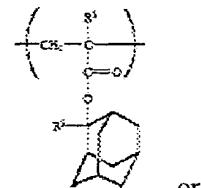
3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

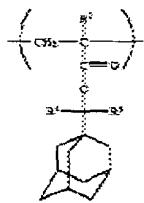
Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claim 1 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-2 of copending Application No. 10/254598 (US 2003/0099900 A1) in view of Urano et al. (US 5976759 A). The said copending application claims a

chemically amplification type positive resist composition comprising (A) a resin having a polymerization

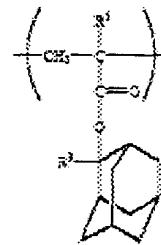


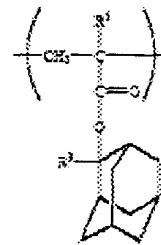
unit derived from p-hydroxystyrene and a polymerization unit of the formula (1)



formula (2) wherein, R1 and R2 are independently H or methyl group, R3-5 each represent an alkyl group having 1 to 8 carbon atoms; (B) a resin obtained by protecting apart of the hydroxyl groups in the poly(p-hydroxystyrene) by a protective group; and (C) an acid generating agent. Specifically claim 2 claims a composition wherein R1 and R2 are methyl and R2-5 are each methyl or ethyl. It is the examiner's position that the limitations of the instant claims are met when R1 of Formula (1) is either hydrogen or methyl and R3 is an ethyl group.

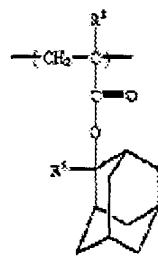
The said application fails to teach the use of polypropylene glycol as set forth in the instant claims. However, the examiner is of the position that polypropylene glycol is a well-known and conventional surfactant, which is added to compositions in order to improve the film forming properties, wettability and striation resistance. This position is supported by the teachings of Urano, which discloses that suitable nonionic surfactants include polyethylene glycol distearate, polyethylene glycol and polypropylene glycol (c. 30, l. 37-39; c. 31, l. 28-46). It would have been obvious to one of ordinary skill in the art, based on the claims of Yamada (10/254598) and what is known in the art as disclosed by Urano, to make a photoresist composition comprising (A) a resin having a polymerization unit derived

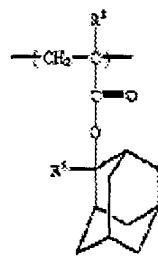


from p-hydroxystyrene and a polymerization unit of the formula (1)  wherein R3 is an ethyl group; (B) an acid generating agent; and (C) a surfactant such as polypropylene glycol in order to obtain a composition which has improved film forming properties. The examiner notes that the comprising language of the claims fails to prohibit the presence of the claimed second resin.

*This is a provisional obviousness-type double patenting rejection.*

5. Claim 1 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 4/3/1 of copending Application No. 10/233519 (US 2003/0114589 A1) in view of Urano et al. (US 5976759 A). The said copending application claims a resist composition comprising (1) a novolak resin; (2) a resin having at least one structural unit selected from formulae (IIa), (IIb) or (IIc) and has a structural unit derived from p-hydroxystyrene; and (3) an acid



generator. Said formula (IIa) has the structure  wherein R3 represents a hydrogen or methyl group, R6 represents an alkyl group having 1 to 8 carbon atoms. It is the examiner's position that the limitations of the instant claims are met when R3 of Formula (IIa) is either hydrogen or methyl and R6 is an ethyl group.

The said application fails to teach the use of polypropylene glycol as set forth in the instant claims. However, the examiner is of the position that polypropylene glycol is a well-known and conventional surfactant, which is added to compositions in order to improve the film forming properties,

wettability and striation resistance. This position is supported by the teachings of Urano, which discloses that suitable nonionic surfactants include polyethylene glycol distearate, polyethylene glycol and polypropylene glycol (c. 30, l. 37-39; c. 31, l. 28-46). It would have been obvious to one of ordinary skill in the art, based on the claims of Suetsugu (10/233519) and what is known in the art as disclosed by Urano, to make a photoresist composition comprising (A) a resin comprising a resin having a structural unit derived from p-hydroxystyrene and a unit of formula (IIa) wherein R6 is an ethyl group; (B) an acid generating agent; and (C) a surfactant such as polypropylene glycol in order to obtain a composition which has improved film forming properties. The examiner notes that the comprising language of the claims fails to prohibit the presence of the claimed novolak resin.

*This is a provisional obviousness-type double patenting rejection.*

6. Claim 1 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 4/1 of copending Application No. 10/084182 (US 2002/0164540 A1) in view of Urano et al. (US 5976759 A). The said copending application claims a chemical amplifying positive resist composition comprising (A) a resin having a polymerization unit derived from hydroxystyrene and a polymerization unit derived from (meth)acrylic acid 2-methyl-2-adamantyl or (meth)acrylic acid 2-ethyl-2-adamantyl; (B) an acid generating agent; (C) a basic compound; and (D) a polyvalent carboxylic acid ester. It is the examiner's position that (meta)acrylic acid 2-ethyl-2-adamantyl is structurally analogous to 2-ethyl-2-adamantyl (meth)acrylate as set forth in the instant claims.

The said application fails to teach the use of polypropylene glycol as set forth in the instant claims. However, the examiner is of the position that polypropylene glycol is a well-known and conventional surfactant, which is added to compositions in order to improve the film forming properties, wettability and striation resistance. This position is supported by the teachings of Urano, which discloses that suitable nonionic surfactants include polyethylene glycol distearate, polyethylene glycol and

polypropylene glycol (c. 30, l. 37-39; c. 31, l. 28-46). It would have been obvious to one of ordinary skill in the art, based on the claims of Nakanishi et al. (10/084182) and what is known in the art as disclosed by Urano, to make a photoresist composition comprising (A) a resin comprising a resin having a structural unit derived from hydroxystyrene and a unit (meta)acrylic acid 2-ethyl-2-adamantyl; (B) an acid generating agent; and (C) a surfactant such as polypropylene glycol in order to obtain a composition which has improved film forming properties. The examiner notes that the comprising language of the claims fails to prohibit the presence of the claimed basic compound and polyvalent carboxylic acid ester.

*This is a provisional obviousness-type double patenting rejection.*

7. Claim 1 is directed to an invention not patentably distinct from claims 1-2 of commonly assigned Application No. 10/254598 (US 2003/0099900 A1); 4/3/1 of commonly assigned Application No. 10/10233519 (US 2003/0114589); and claim 4 of commonly assigned Application No. 10/084182 (US 2002/164540 A1) as discussed above.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). The commonly assigned applications discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee is required under 35 U.S.C. 103(c) and 37 CFR 1.78(c) to either show that the conflicting inventions were commonly owned at the time the invention in this application was made or to name the prior inventor of the conflicting subject matter. Failure to comply with this requirement will result in a holding of abandonment of the application.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a

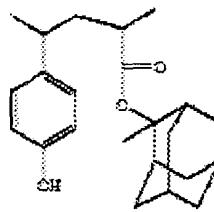
reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications filed on or after November 29, 1999.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being obvious over Barclay et al. (US 6,492,086 B1) in view of Nakurama et al. (US 6,514,656 B1). Barclay exemplifies the synthesis of polymers 1-3 comprising p-hydroxystyrene and 2-methyladamantylmethacrylate having a molecular



weight of 10,000. The said polymer has the structure:

(c. 19, l. 1-30). Example 8

further uses the said polymers in admixture with an acid generator to form a photoresist composition (c. 19, l. 34-c. 20, l. 13). Although Barclay fails to exemplify a polymer derived from 2-ethyl-2-adamantyl methacrylate, it clearly teaches that additional preferred polymers correspond to the said polymer having alternate alkyl substitution at the tertiary carbon that is linked to the ester oxygen, more typically a C1-6 substitution is preferred (c. 7, l. 1-44). It is the examiner's position that one of ordinary skill in the art would readily envisage a copolymer similar to that of example 7 wherein the adamantyl methacrylate unit has an ethyl substitution instead of the exemplified methyl substitution.

Barclay teaches all the limitations of the claimed invention except it fails to teach the use of polypropylene glycol as claimed by the applicant. Barclay does however teach that the taught

composition may also contain optional additives such as anti-striation agents, plasticizers, speed enhancers, etc. Such optional additives typically are present in minor concentrations in the photoresist composition (c. 12, l. 36-45). Nakamura discloses that plasticizers such as tricresyl phosphate, dimethylphthalate, polyethylene glycol and polypropylene glycol are added to resist composition to impart flexibility to a film. The amount to be added is usually from 0.5-30% by weight of the total weight of the solid components of the said composition (c. 35, l. 31-41). Although Nakamura fails to disclose the molecular weight of the polypropylene glycol used, it would have been obvious to one of ordinary skill in the art to optimize the molecular weight of the plasticizer to obtain optimal results. It would also have been obvious to one of ordinary skill in the art to incorporate a plasticizer such as polypropylene glycol, as taught by Nakamura, into the taught composition of Barclay in order to improve flexibility and abrasion resistance of the formed film.

*Response to Arguments*

10. Applicant's arguments filed July 12, 2004 have been fully considered but they are not persuasive. Applicants argue that the prior art of Barclay and Nakamura cannot be combined since Nakamura employs different components in the described composition, which fail to include the required component of Barclay (i.e., photoacid labile esters that contain an alicyclic group). The examiner respectfully disagrees. Nakamura is relied upon to teach what is well known and conventional in the art in regard to plasticizers and other additives. While, the additives of Barclay are not limited to those listed in Nakamura, the examiner is of the position that the plasticizers of Nakamura are well known and conventional. This position is supported by the disclosure of US 5,922,505 (c. 9, l. 17-19); US 2003/0215743 (p. 0065); and US 2003/0087179 (p. 0070). Furthermore, additives may be incorporated into resist compositions to an extent not to impair the effects of the given invention. The examiner maintains the position that it would also have been obvious to one of ordinary skill in the art to incorporate a well known and conventional additive such as a polypropylene glycol plasticizer, as taught

by Nakamura, into the taught composition of Barclay in order to improve flexibility and abrasion resistance of the formed film.

11. Applicants further submit a declaration under 37 CFR 1.132 to in an attempt to show that most of the disclosed plasticizers of Nakamura exhibit disadvantageously poor prevention of scum or residue. The declaration submitted by the applicant under 37 CFR 1.132 has been fully considered however, the declaration as presented is not commensurate in scope with the instant claims. The declarant uses (1) a resin mixture of Resin A1 and Resin B1, (2) an acid generator blend of acid generating agents I and II; and (3) a quencher. The claims as written do not require a resin blend, an acid generator blend or a quencher. It is the examiner's belief that the preferred embodiment may result in enhanced results and should not be used in comparison with the closest prior art. The examiner is also unable to make a direct comparison of the prior art and the instant invention because Barclay fails to teach and/or exemplify a composition comprising a resin blend, an acid generator blend or a quencher as presented in the declaration. A better comparison would be to make the composition of the Barclay (ex. 7-8) and vary the plasticizer.

12. In regard to three provisional double patenting rejections, applicants request the said rejections be withdrawn due to the earlier filing date and the requirement of MPEP 822.01. The examiner maintains the rejections since a new ground(s) of rejection has been established and the double patenting are not the only rejections remaining in the application.

13. The rejection of record is maintained for the reasons set forth above.

*Conclusion*

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 1752

15. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yvette C. Thornton whose telephone number is 571-272-1336. The examiner can normally be reached on Monday-Thursday 8-6:30.

17. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

18. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Yvette Clarke Thornton  
Primary Examiner  
Art Unit 1752

yct  
September 16, 2004